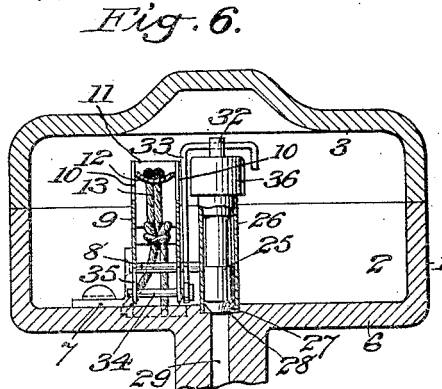
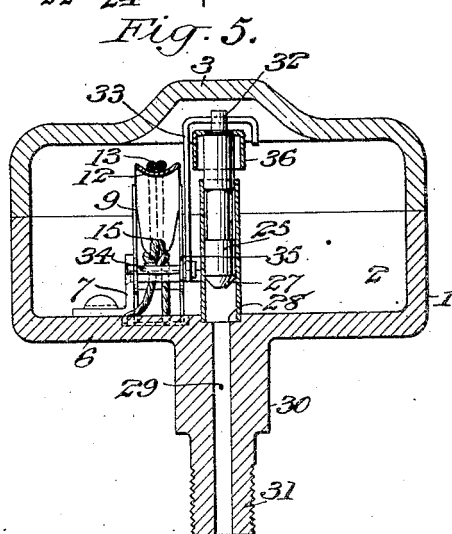
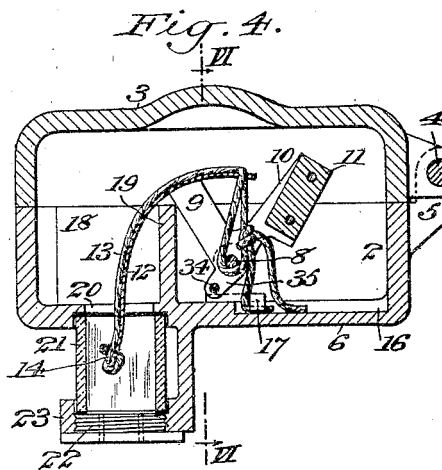
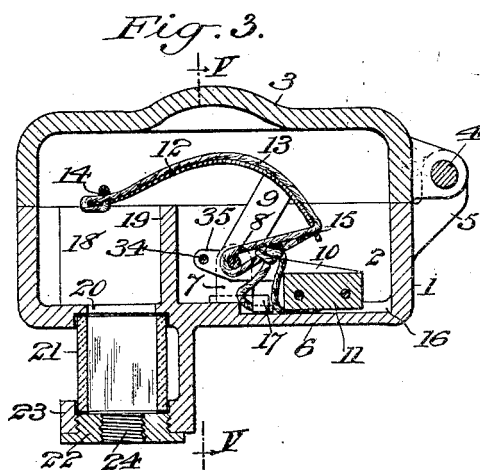
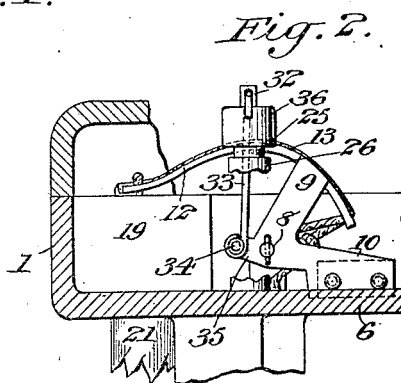
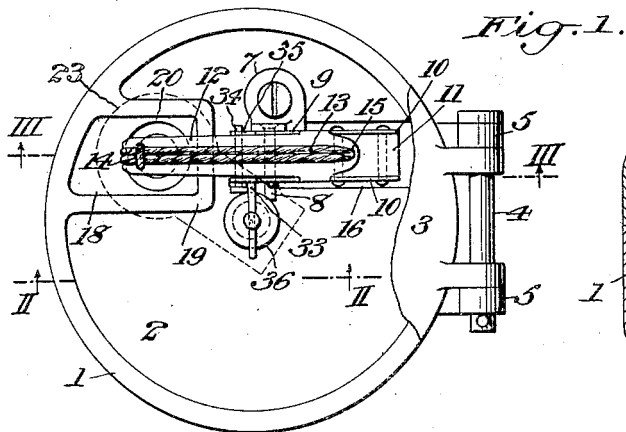


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G. W. LEIMAN
LIQUID FEEDING DEVICE
Filed Aug. 27, 1926



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UNITED STATES PATENT OFFICE.

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LIQUID-FEEDING DEVICE.

Application filed August 27, 1926. Serial No. 131,929.

My invention relates to improvements in liquid feeding devices and more particularly to a device adapted to deliver oil or other liquid lubricant in small quantities to parts of a machine to be lubricated when the parts are set in motion and automatically moved out of operation when the parts come to rest. One of the objects is to provide a device having an oscillating member which is moved by a fluid actuated means (not shown) connected therewith.

Another object is to provide a device having an oscillating member which operates by gravity to automatically move the member out of operation when the fluid actuated means is inert.

Another object is to provide an oscillating member having a wick or other capillary means which feeds oil from a reservoir when the member is moved to its operative position.

Another object is to provide certain improvements in the form, construction and arrangement of the elements whereby the above named and other objects may be effectively attained.

A practical embodiment of my invention is represented in the accompanying drawings, in which

Fig. 1 represents a plan view of my improved device having the cover thereof broken away to show other parts more clearly.

Fig. 2 represents a detail vertical section taken in the plane of the line II—II of Fig. 1, looking in the direction of the arrows.

Fig. 3 represents a vertical section taken in the plane of the line III—III of Fig. 1, looking in the direction of the arrows, with the elements shown therein at rest.

Fig. 4 represents a similar view with the elements in an operative position.

Fig. 5 represents a vertical section taken in the plane of the line V—V of Fig. 3, looking in the direction of the arrows.

Fig. 6 represents a vertical section taken in the plane of the line VI—VI of Fig. 4, looking in the direction of the arrows.

The device comprises a body 1 having a reservoir 2 therein and a cover 3 hinged at 4 to lugs 5, carried by the body 1. Mounted on the bottom 6 of the reservoir 2 is a bracket 7 having a pintle 8 which forms a pivot of

an oscillating member 9. This member has outwardly extending arms 10 to which is secured a weight 11. The member 9 has a channel 12, in the present instance in the form of a longitudinal, as well as a transversely curved trough. The longitudinal curvature of the channel is substantially concentric with the pintle 8, the function of which will be hereinafter explained. A capillary means such as a wick 13 composed of a plurality of strands of wool, or other similar material, is secured at 14 to one end of the channel 12 and disposed longitudinally therein, while the other end is passed through a hole 15 in the channel and looped around the pintle 8. The free ends of the wick 13 extend downwardly and rest in a sump 16 in the bottom 6 of the reservoir 2. One or more of the ends of the wick may be held in position in the sump by a depending lug 17 on the bracket 7.

An open chamber 18 is formed by walls 19 uprising from the bottom 6 to the level of the top of the body, which chamber has an outlet 20 leading into a tubular sight-glass 21, secured in position by a bushing 22 threaded in a support 23 spaced from the bottom 6. This bushing 22 is screw-threaded at 24 to receive a pipe connection (not shown) through which the liquid lubricant enters and is directed to parts of the machine desired to be lubricated.

The member 9 is actuated by means of a piston 25 mounted to reciprocate in a cylinder 26, vertically disposed in the reservoir 2 and secured to the bottom 6. The lower end of the piston 25 is provided with a valve 27 which is arranged to coact with a seat 28 located at the top of a passage 29 in a stem 30, depending from the bottom of the body. This stem 30 is provided with screw threads 31, by which the device may be connected with a fluid actuated means (not shown) of any well known or approved form. The upper end 32 of the piston is arranged to receive a link 33 which is connected to a pin 34, carried by ears 35 extending outwardly from the member 9. The upper end of the piston 25 is also provided with a cap 36 which coacts with the outer walls of the cylinder 26 and serves as a guard to prevent oil passing from the reservoir into the cylinder 26 when the device is in its operative

position. In the inoperative position of the member 9, the outer end of the channel 12 is disposed so as to overhang the chamber 18 above the level of the liquid in the reservoir, as clearly shown in Fig. 3. When the member is in its operative position a portion of the channel 12 will extend through the chamber 18 and its outlet 20, so that the outer end thereof will be disposed within the sight-glass 21 and below the level of the liquid in the reservoir, as shown in Fig. 4.

The inoperative position of the elements of the device is shown in Figs. 1, 2, 3 and 5, and it is to be understood that the parts of the machine (not shown) to be lubricated are at rest. When the parts of the machine are set in motion, it is to be assumed that, the fluid actuated means (not shown) is also energized and exerts a suction through the passage 29 in the stem 30, which suction draws the piston downwardly so that the valve 27 will rest upon its seat 28, as shown in Fig. 6. This downward movement of the piston 25, through the link 33 and ears 35, rocks the member 9 on the pintle 8 and causes the channel 12 with the wick 13 therein to enter the chamber 18 and sight-glass 21, as shown in Fig. 4. In this position, by reason of capillary attraction, the liquid lubricant will flow upwardly from the reservoir through the wick 13, thence along the channel and downwardly until it drips off the lower end of the wick and channel through the sight-glass 21 and into the connection (not shown) where it is directed by any well known or approved means for carrying the liquid lubricant to the parts of the machine to be lubricated. When the suction is broken, the piston 25 will be released and, by reason of the weight 11 on the arms 10 overbalancing the weight of the piston and adjacent elements, the member 9 will be again caused to rock, which movement of the member causes the link 33, through the ears 35 on the member to lift the piston 25 so that the device will be rendered inoperative. In this position the outer end of the channel 12 with its wick 13 therein will be lifted above the level liquid lubricant in the reservoir and the capillary attraction of the wick arrested.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention; hence, I do not intend to be limited to the particular embodiment herein shown and described, but

What I claim is:—

1. A liquid feeding device comprising, a reservoir, a member coacting with the liquid in said reservoir to control the movement of the liquid therefrom, a fluid actuated device for oscillating the member in one direction, and a gravity operated means controlled by

said device for rocking the member in the other direction.

2. A liquid feeding device comprising, a reservoir, a member having a capillary means arranged to coact with the liquid in said reservoir to control the movement of the liquid therefrom, a fluid actuated device for moving the member in one direction and holding the same in a fixed position, and a gravity operated means for rocking the member in the other direction.

3. A liquid feeding device comprising, a reservoir, a member having a capillary means arranged to coact with the liquid in said reservoir to control the movement of the liquid therefrom, a fluid actuated device for moving the member in one direction and holding the same in a fixed position, and a gravity operated means controlled by said device for rocking the member in the other direction.

4. A liquid feeding device comprising, a reservoir, an oscillating member mounted therein, said member including a channel having a capillary means located therein in position to coact with the liquid in said reservoir, a counter-balance for holding the member in one position, and a device connected to the member for moving the same into another position.

5. A liquid feeding device comprising, a reservoir, an oscillating member mounted therein, said member including a channel having a capillary means located therein in position to coact with the liquid in said reservoir, a counter-balance for holding the member in one position, and a fluid actuated device connected to the member for moving the same into another position.

6. A liquid feeding device comprising, a reservoir, an oscillating member mounted therein, said member including a channel having a capillary means located therein in position to coact with the liquid in said reservoir, a counter-balance for holding the member in one position, and a reciprocating device connected to the member for moving the same into another position.

7. A liquid feeding device comprising, a reservoir, an oscillating member mounted therein, said member including a channel having a capillary means located therein in position to coact with the liquid in said reservoir, a counter-balance for holding the member in one position, and a fluid actuated reciprocating device connected to the member for moving the same into another position.

8. A liquid feeding device comprising, a reservoir, an outlet chamber associated therewith, an oscillating member mounted in said reservoir, said member including a channel arranged to be moved into and out of said chamber, a capillary means located in said channel in position to coact with the

liquid in the reservoir, a counter-balance for holding the member in one position, and a device connected to the member for moving the same into another position.

5 9. A liquid feeding device comprising, a reservoir, an outlet chamber associated therewith, an oscillating member mounted in said reservoir, said member including a channel arranged to be moved into and out
10 of said chamber, a capillary means located in said channel in position to coact with the liquid in the reservoir, a counter-balance for holding the member in one position, and a fluid actuated device connected to the
15 member for moving the same into another position.

10 10. A liquid feeding device comprising, a reservoir, an outlet chamber associated therewith, an oscillating member mounted
20 in said reservoir, said member including a channel arranged to be moved into and out of said chamber, a capillary means located in

said channel in position to coact with the liquid in the reservoir, a counter-balance for holding the member in one position, and a
25 reciprocating device connected to the member for moving the same into another position.

11. A liquid feeding device comprising, a reservoir, an outlet chamber associated
30 therewith, an oscillating member mounted in said reservoir, said member including a channel arranged to be moved into and out of said chamber, a capillary means located in said channel in position to coact with the
35 liquid in the reservoir, a counter-balance for holding the member in one position, and a fluid actuated reciprocating device connected to the member for moving the same into another position.
40

In testimony, that I claim the foregoing as my invention, I have signed my name this
25th day of August, 1926.

GEORGE W. LEIMAN.